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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DAVID W. CANNELL, HITENDRA MATHUR, and NGHI VAN NGUYEN

Appeal 2008-3431
Application 09/820,858
Technology Center 1600

Decided: July 29, 2008

Before TONI R. SCHEINER, LORA M. GREEN, and FRANCISCO C. PRATS, *Administrative Patent Judges*.

PRATS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to hair conditioning compositions. The Examiner has rejected the claims as anticipated and obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

Claims 1-9, 13-20, 24-26, 29, 35, and 37-48 stand rejected and are on appeal (App. Br. 5). Claim 1, the only appealed independent claim is representative of the appealed subject matter and reads as follows:

> 1. A composition for durable conditioning of at least one keratinous fiber comprising:
>
> (a) at least one compound comprising at least two quaternary ammonium groups; and
>
> (b) at least one compound comprising at least one C_5 to C_7 saccharide unit substituted with at least one amino group,
>
> wherein said at least one compound comprising at least two quaternary ammonium groups and at least one compound comprising at least one C_5 to C_7 saccharide unit substituted with at least one amino group are present in an amount effective to durably condition said at least one keratinous fiber,
>
> with the proviso that if the at least one compound comprising at least one C_5 to C_7 saccharide unit is chosen from polysaccharides, then the amino groups are unsubstituted.

The Examiner applies the following documents in rejecting the claims:

Raaf	US 4,743,442	May 10, 1988
Brode	US 4,913,743	Apr. 3, 1990
Woodin	US 5,494,533	Feb. 27, 1996

The following rejections are before us for review:

Claims 1-8, 13-16, 20, 24-26, 29, 35, and 45-47 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Woodin (Ans. 5-6).

Claims 1-9, 13, 16, 17, 20, 24-26, 29, 35, 39, 40, and 45-48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Brode (Ans. 6-7).

Claims 14, 15, 37, 38, and 41-44 stand rejected under 35 U.S.C.

§ 103(a) as being unpatentable over Brode and Raaf (Ans. 8-9).

ANTICIPATION -- WOODIN

ISSUE

The Examiner cites Woodin as describing personal cleansing compositions that contain polyquaternium and laurdimonium hydroxyethylcellulose, compounds which the Examiner contends meet limitation (a) in claim 1 requiring the composition to contain a compound comprising at least two quaternary ammonium groups (Ans. 5). The Examiner also contends that "the laurdimonium hydroxyethylcellulose meets the limitation of an amino polysaccharide in which the amino group is not substituted" (*id.*)

Appellants respond that "[t]he nitrogen in a quaternized compound is substituted. Thus, since hydroxyethylcellulose is a polysaccharide, laurdimonium hydroxyethylcellulose does not meet the proviso of claim 1 that the amino group is unsubstituted. Accordingly, laurdimonium hydroxyethylcellulose is not a compound as recited in part (b) of claim 1." (App. Br. 16).

The Examiner alternatively contends that Woodin meets limitation (b) of claim 1 because Woodin discloses that "copolymers of saccharides and compatible synthetic monomers are employed in the cleansing composition," the saccharides including glucosamine and galactosamine (Ans. 5-6 (citing Woodin, col. 4, ll. 44, 45, and 53-61)).

Appellants respond that, although Woodin's saccharide-containing copolymer "can comprise glucosamine or galactosamine, *Woodin* does not teach combining a copolymer comprising glucosamine or galactosamine

with a compound comprising at least two quaternary ammonium groups, as recited in part (a) of claim 1" (App. Br. 16).

The issue with respect to this rejection, then, is whether the Examiner erred in finding that Woodin discloses a composition that contains all of the ingredients recited in claim 1.

FINDINGS OF FACT ("FF")

1. Claim 1 recites a composition for durable conditioning of at least one keratinous fiber. The composition has two ingredients, both of which must be present in the composition in amounts that are effective to durably condition at least one keratinous fiber:

(a) at least one compound that has at least two quaternary ammonium groups, and

(b) at least one compound that has at least one C_5 to C_7 saccharide unit substituted with at least one amino group.

Claim 1 provides that if the amino-substituted C_5 to C_7 saccharide-containing compound is a polysaccharide, then the amino groups must be unsubstituted.

2. Appellants' Specification states that suitable compounds that contain at least two quaternary ammonium groups include cationic cellulose derivatives such as "polymeric quaternary ammonium salts of hydroxyethyl cellulose reacted with lauryl dimethyl ammonium-substituted epoxide (. . . polyquaternium-24)" (Spec. 13-14).

3. Woodin discloses "aerated personal cleansing compositions that provide cleansing efficacy without the use of any surfactant components. . . .

Because of the absence of any irritating surfactants, these compositions are extremely mild to skin and/or hair" (Woodin, col. 2, ll. 17-24).

4. Woodin's compositions contain "(a) from about 0.01% to about 20% by weight of a viscosity enhancing water-soluble polymer having a molecular weight of from about 1,000 to about 3,000,000 . . . and (b) from about 80% to about 99.8% water" (Woodin, col. 2, ll. 55-61).

5. As the polymer component of its composition, Woodin discloses that "[p]referred are cationic and nonionic resins and mixtures thereof," and that "[t]he cationic polymers most preferred . . . include, but are not limited to laurdimonium hydroxyethyl cellulose . . ." (Woodin, col. 3, ll. 43-55). The composition in Example III of Woodin contains both laurdimonium hydroxyethylcellulose and polyquaternium 24 (*id.* at col. 9, ll. 46-65).

6. Woodin discloses that other compounds are useful as the polymer component in its compositions, including "(I) nonionic, anionic, and cationic polysaccharides; [and] (II) copolymers of the saccharides of (I) and compatible synthetic monomers" (Woodin, col. 4, ll. 38- 45).

Regarding item (II), Woodin further discloses that "[c]opolymers of saccharides and synthetic monomers useful in the present invention encompass those containing the following saccharides: glucose, galactose, mannose, arabinose, xylose, fucose, fructose, *glucosamine, galactosamine*, glucuronic acid, galacturonic acid, and 5 or 6 membered ring polyalcohols (*id.* at col. 4, ll. 53-58 (emphasis added)).

7. Appellants assert, and the Examiner does not dispute, that "[t]he nitrogen in a quaternized compound is substituted" (App. Br. 16).

PRINCIPLES OF LAW

As stated in *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992):

> [T]he examiner bears the initial burden . . . of presenting a *prima facie* case of unpatentability. . . . After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument.

For a reference to anticipate a claim "[e]very element of the claimed invention must be literally present, *arranged as in the claim*." *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) (emphasis added).

For example, to anticipate a chemical compound a "reference must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without *any* need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference. *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (further noting that "[s]uch picking and choosing may be entirely proper in the making of a § 103, obviousness rejection, . . . but it has no place in the making of a § 102, anticipation rejection." *Id.* at 587-88.).

ANALYSIS

We agree with Appellants that the Examiner erred in finding that Woodin discloses a composition that contains all of the ingredients recited in claim 1. While we agree with the Examiner that Woodin's composition containing laurdimonium hydroxyethylcellulose and polyquaternium 24 (*see* FF 5) meets limitation (a) of claim 1, the cellulose portion of both of those compounds is a polysaccharide (*see* FF 2).

Claim 1 provides that, if the amino-substituted C_5 to C_7 saccharide-containing compound recited in limitation (b) is a polysaccharide, then the

amino groups must be unsubstituted. As Appellants point out, and the Examiner does not dispute, the quaternary ammonium groups in laurdimonium hydroxyethylcellulose and polyquaternium 24 are substituted amine groups (FF 7). Thus, because laurdimonium hydroxyethylcellulose and polyquaternium 24 are polysaccharide-containing compounds that have substituted amine groups, they do not meet the requirements of limitation (b) as recited in claim 1.

The Examiner argues that Woodin meets limitation (b) of claim 1 because Woodin contemplates "using mixtures of cationic and nonionic resins (column 3, lines 44, 53 and 67) and copolymers of cationic polysaccharides and synthetic monomers and . . . these copolymers encompass glucosamine or galactoseamine [sic] (column 4, lines 43, 44, 53-61). The amine groups in glucosamine and galactosamine are not substituted" (Ans. 10). Because the amine groups of Woodin's glucosamine and galactosamine are not substituted, the Examiner reasons, "[t]here is no picking and choosing a composition disclosed as comprising copolymers of cationic polysaccharides and synthetic monomers that encompass those containing glucose, galactose, glucoseamine [sic] or galactosamine" (*id.* at 10-11).

The Examiner's argument does not persuade us that Woodin discloses a composition that meets all of the limitations of claim 1. We agree with the Examiner that Woodin discloses cationic polymers, nonionic polymers, "and mixtures thereof" as being among its preferred polymers (Woodin, col. 3, l. 44 (FF 5)). We also agree with the Examiner that Woodin discloses laurdimonium hydroxyethylcellulose, a compound having two quaternary ammonium groups as a particularly preferred cationic polymer (FF 5). We

further agree with the Examiner that Woodin discloses that its polymer ingredient can also be a copolymer of synthetic monomers and saccharides, where the saccharides may be glucosamine or galactosamine (FF 6).

Nonetheless, the Examiner does not point to, nor do we see, any explicit or inherent disclosure in Woodin, in an example or otherwise, that specifically describes a single composition that contains (a) a compound having two quaternary ammonium groups, and (b) a five to seven carbon saccharide-containing compound that is substituted with an amine group as recited in claim 1. While Woodin may provide a generic disclosure of mixing cationic and nonionic polymers (FF 5), to arrive at a composition having the ingredients recited in claim 1, one must select a precise set of separately disclosed ingredients which Woodin does not specifically describe as being combined.

As noted above, anticipation is not established by selecting isolated elements from portions of a reference that are not directly related and combining them to arrive at the claimed invention. *See In re Arkley*, 455 F.2d at 587-588. We therefore do not agree with the Examiner that Woodin's separate disclosure of possible polymer components, combined with the general statement that its cationic and nonionic polymers can be mixed, amounts to a description that is sufficiently specific to anticipate a composition containing the ingredients recited in claim 1.

Because we do not agree with the Examiner that Woodin meets all of the limitations of claim 1, we reverse the Examiner's anticipation rejection of claim 1 and its dependent claims 2-8, 13-16, 20, 24-26, 29, 35 and 45-47.

ANTICIPATION -- BRODE

ISSUE

Claims 1-9, 13, 16, 17, 20, 24-26, 29, 35, 39, 40 and 45-48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Brode (Ans. 6-7).

The Examiner cites Brode as describing a composition comprising glycosaminoglycans and cationic polymers, including, among others, polyquaternium 24 (*id.*). The Examiner contends that Brode meets limitation (b) of claim 1 because Brode discloses that the glycosaminoglycans "are polysaccharides containing disaccharide repeating units of hexosamine and hexose or hexuronic acid" (*id.* (citing Brode, col. 3, ll. 20-23)).

Appellants contend that the Examiner has not shown that Brode meets limitation (b) of claim 1 because the amino groups in glycosaminoglycans are normally substituted with either an acetyl or sulfate group (*see* App. Br. 18-19).

The issue with respect to this rejection, then, is whether the Examiner has shown that the glycosaminoglycans in Brode's compositions meet limitation (b) in claim 1.

FINDINGS OF FACT ("FF")

8. As noted above, claim 1 recites a composition for durable conditioning of at least one keratinous fiber. The composition has two ingredients:

(a) at least one compound that has at least two quaternary ammonium groups, and

(b) at least one compound that has at least one C_5 to C_7 saccharide unit substituted with at least one amino group.

Claim 1 provides that if the amino-substituted C_5 to C_7 saccharide-containing compound is a polysaccharide, then the amino groups must be unsubstituted.

9. Brode describes personal care compositions that contain "combinations of glycosaminoglycan and cationic polymer" (Brode, col. 1, ll. 13-14). Brode's claim 10 recites "polyquaternium 24" as one of a number of cationic polymers (*id.* at col. 38, ll. 43-46).

10. Brode discloses "[g]lycosaminoglycans are well known, naturally occurring, polysaccharides containing disaccharide repeating units of hexosamine and hexose or hexuronic acid, and may contain sulfate groups" (Brode, col. 3, ll. 20-23). Brode discloses that "[r]epresentative glycosaminoglycans include, but are not limited to: hyaluronan or derivatives thereof such as hylan; heparin; heparan; chondroitin; keratan; dermatan; and sulfates of such materials" (*id.* at col. 3, ll. 46-49).

11. Brode discloses that a "particularly preferred glycosaminoglycan is hyaluronan, and derivatives thereof, which contain repeating disaccharide structure of D-glucuronic acid and 2-acetamido-2-desoxy-D-glucose joined by alternating β1→3 glucuronidic and β1→4 glucosaminidic bonds" (Brode, col. 3, ll. 49-54).

12. Appellants state, and the Examiner does not dispute, that a "glycosaminoglycan is a C_6 aminopolysaccharide, but unlike the hexosamine of which it is composed, the glycan form of the amino group is normally substituted. For example, in chondroitin sulfate, keratan, and dermatan, the amino group is acetylated. In heparin, the amino group is usually sulfated" (App. Br. 18).

ANALYSIS

We agree with Appellants that the Examiner has not shown that Brode meets limitation (b) of claim 1.

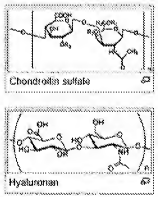
Specifically, Brode discloses that its preferred glycosaminoglycan, hyaluronan, is a polysaccharide made up of repeating disaccharide units that contain glucuronic acid and "2-acetamido-2-desoxy-D-glucose" (*see* FF 11). Because it consists of an acetyl group bound to the amino nitrogen with an amide configuration, we agree with Appellants that one of ordinary skill would not consider the 2-acetamido group of hyaluronan to be an unsubstituted amine group.

Claim 1 provides that, if the amino-substituted C_5 to C_7 saccharide-containing compound recited in limitation (b) is a polysaccharide, then the amino groups must be unsubstituted (FF 8). Brode's hyaluronan therefore does not meet limitation (b) of claim 1.

Appellants point out, and the Examiner does not dispute, that the amino nitrogen in glycosaminoglycans is normally substituted with either a sulfate or acetate group (FF 12). Moreover, other than Brode's general disclosure that glycosaminoglycans contain hexosamines (*see* FF 10), the Examiner does not assert or explain why the glycosaminoglycans explicitly listed by Brode necessarily contain only unsubstituted amine groups, as required by claim 1.

Rather, the Examiner argues that "aminoglycans have amide functional groups, and amides are not substituted amines. Therefore, the glycosaminoglycans are not substituted amine" (Ans. 12). As evidence that one of ordinary skill would understand glycosaminoglycans to contain amide

groups, rather than amine groups, the Examiner supplies the following structural formulas for chondroitin sulfate and hyaluronan:



(Ans. 14.) Both formulas show disaccharides in which one of the saccharide residues has an amide substitution.

However, rather than bolstering the Examiner's position, the Examiner's argument supports Appellants' assertion that one of ordinary skill in the art would not understand Brode's glycosaminoglycans to be polysaccharides that exclusively have unsubstituted amine residues, as required by claim 1. Therefore, we find that the Examiner has failed to show, by a preponderance of the evidence, that Brode meets limitation (b) in claim 1, which requires the composition to contain "at least one compound comprising at least one C_5 to C_7 saccharide unit substituted with at least one amino group . . . with the proviso that if the at least one compound comprising at least one C_5 to C_7 saccharide unit is chosen from polysaccharides, then the amino groups are unsubstituted."

Because we do not agree with the Examiner that Brode meets all of the limitations of claim 1, we reverse the Examiner's anticipation rejection of claim 1 and its dependent claims 2-9, 13, 16, 17, 20, 24-26, 29, 35, 39, 40 and 45-48.

OBVIOUSNESS

Claims 14, 15, 37, 38, and 41-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Brode and Raaf (Ans. 8-9).

Claims 14 and 15 depend from claim 1 and recite specific concentration ranges for the quaternary ammonium compound recited in limitation (a) of claim 1. Claims 37 and 38 also depend from claim 1, and recite specific concentration ranges for the amino-substituted C_5 to C_7 saccharide compound recited in limitation (b).

Claims 41 and 42 ultimately depend from claim 1, requiring the composition of claim 1 to contain at least one additional sugar, which may be glucose. Claims 43 and 44 recite specific concentration ranges for the additional sugar.

The Examiner urges that Brode suggests the claimed amounts of the compounds recited in limitations (a) and (b) of claim 1, but concedes that "Brode is silent on the presence of monosaccharides such as glucose in the composition" (Ans. 8). To meet that limitation the Examiner cites Raaf as disclosing "a composition comprising glucose, alginate, polyvinylpyrrolidone and other components for use as skin care and skin protection composition" (*id.*). Noting that the compositions from the two references are used for the same purpose, the Examiner finds that one of ordinary skill in the art would have been prompted to combine the two compositions because "[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose" (*id.*).

We will reverse this rejection as well. "[O]bviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)).

As discussed above, we do not agree with the Examiner that Brode meets limitation (b) in claim 1, which requires the composition to contain "at least one compound comprising at least one C_5 to C_7 saccharide unit substituted with at least one amino group . . . with the proviso that if the at least one compound comprising at least one C_5 to C_7 saccharide unit is chosen from polysaccharides, then the amino groups are unsubstituted."

We do not see, and the Examiner does not point to, any disclosure in Raaf that remedies this deficiency in Brode. We therefore reverse the Examiner's rejection of claims 14, 15, 37, 38, and 41-44 as being obvious over Brode and Raaf.

SUMMARY

We reverse the Examiner's rejection of claims 1-8, 13-16, 20, 24-26, 29, 35, and 45-47 under 35 U.S.C. § 102(b) as being anticipated by Woodin.

We reverse the Examiner's rejection of claims 1-9, 13, 16, 17, 20, 24-26, 29, 35, 39, 40, and 45-48 under 35 U.S.C. § 102(b) as being anticipated by Brode.

We reverse the Examiner's rejection of claims 14, 15, 37, 38, and 41-44 under 35 U.S.C. § 103(a) as being unpatentable over Brode and Raaf.

REVERSED

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